## WHAT IS CLAIMED IS:

## 1. A compound of formula (I)

3 wherein

2

9

10

12

21

22

25

 $R_1 \text{ is } N = R^a \text{, aryl, or heteroaryl;}$ 

each of R<sub>2</sub> and R<sub>4</sub>, independently, is R<sup>c</sup>, halogen, nitro, cyano, isothionitro, SR<sup>c</sup>, or

OR<sup>c</sup>; or R<sub>2</sub> and R<sub>4</sub>, taken together, is carbonyl.

R<sub>3</sub> is R<sup>c</sup>, alkenyl, alkynyl, OR<sup>c</sup>, OC(O)R<sup>c</sup>, SO<sub>2</sub>R<sup>c</sup>, S(O)R<sup>c</sup>, S(O<sub>2</sub>)NR<sup>c</sup>R<sup>d</sup>, SR<sup>c</sup>, NR<sup>c</sup>R<sup>d</sup>, NR<sup>c</sup>COR<sup>d</sup>, NR<sup>c</sup>C(O)OR<sup>d</sup>, NR<sup>c</sup>C(O)NR<sup>c</sup>R<sup>d</sup>, NR<sup>c</sup>SO<sub>2</sub>R<sup>d</sup>, COR<sup>c</sup>, C(O)OR<sup>c</sup>, or C(O)NR<sup>c</sup>R<sup>d</sup>;

11 R<sub>5</sub> is H or alkyl;

n is 0, 1, 2, 3, 4, 5, or 6;

X is O, S, S(O), S(O<sub>2</sub>), or NR<sup>c</sup>;

13 X is O, S, S(O), S(O<sub>2</sub>), of TAC,14  $Y \text{ is a covalent bond, CH<sub>2</sub>, C(O), C=N-R<sup>c</sup>, C=N-OR<sup>c</sup>, C=N-SR<sup>c</sup>, O, S, S(O), S(O<sub>2</sub>), or NR<sup>c</sup>;$ 

15 NK<sup>3</sup>; 16 Z is N or CH;

one of U and V is N, and the other is CR<sup>c</sup>; and

18 W is O, S, S(O), S(O<sub>2</sub>), NR<sup>c</sup>, or NC(O)R<sup>c</sup>;

in which each of R<sup>a</sup> and R<sup>b</sup>, independently, is H, alkyl, aryl, heteroaryl; and each of R<sup>c</sup> and R<sup>d</sup>, independently, is H, alkyl, aryl, heteroaryl, cyclyl, heterocyclyl, or alkylcarbonyl.

2. The compound of claim 1, wherein  $R_1$  is  $N = R^a$ 

23243. The compound of claim 2, wherein U is N and V is CH.

- 4. The compound of claim 2, wherein Z is N and W is O.
- 5. The compound of claim 2, wherein X is NR<sup>c</sup>.
- The compound of claim 5, wherein R<sup>c</sup> is H, methyl, ethyl, or acetyl.
- The compound of claim 2, wherein Y is O or CH<sub>2</sub>, and n is 0, 1, 2, 3, or 4.
- 34 8. The compound of claim 7, wherein  $R_3$  is aryl or heteroaryl.
- 36 9. The compound of claim 8, wherein  $R_3$  is pyridinyl.
- 37
  38
  10. The compound of claim 7, wherein R<sub>3</sub> is OR<sup>c</sup>, SR<sup>c</sup>, C(O)OR<sup>c</sup>, or C(O)NR<sup>c</sup>R<sup>d</sup>.
- 11. The compound of claim 7, wherein R<sub>3</sub> is

$$R^{f}$$
  $A$  or  $R^{f}$   $A$ 

in which

33

35

39

41

- each of A and A', independently, is O, S, or NH;
- each of R<sup>e</sup> and R<sup>f</sup>, independently is H, alkyl, aryl, or heteroaryl; and
- m is 1 or 2.
- 46
  47
  12. The compound of claim 2, wherein one of R<sup>a</sup> and R<sup>b</sup> is

$$\{R^{h_{p}}, R^{h_{q}}, or B^{h_{q}}\}$$

- in which
- B is NR<sup>i</sup>, O, or S;
- B' is N or CR<sup>i</sup>;
- 52 Rg is H, alkyl, or alkoxyl;

- R<sup>h</sup> is halogen, NO<sub>2</sub>, CN, alkyl, aryl, heteroaryl, OR<sup>c</sup>, OC(O)R<sup>c</sup>, SO<sub>2</sub>R<sup>c</sup>, S(O)R<sup>c</sup>,

  S(O<sub>2</sub>)NR<sup>c</sup>R<sup>d</sup>, SR<sup>c</sup>, NR<sup>c</sup>R<sup>d</sup>, NR<sup>c</sup>COR<sup>d</sup>, NR<sup>c</sup>C(O)OR<sup>d</sup>, NR<sup>c</sup>C(O)NR<sup>c</sup>R<sup>d</sup>, NR<sup>c</sup>SO<sub>2</sub>R<sup>d</sup>, COR<sup>c</sup>,

  C(O)OR<sup>c</sup>, or C(O)NR<sup>c</sup>R<sup>d</sup>;

  R<sup>i</sup> is H, alkyl, or alkylcarbonyl;

  p is 0, 1, or 2; and
- 59
  13. The compound of claim 12, wherein one of R<sup>a</sup> and R<sup>b</sup> is

$$\mathbb{R}^{q}$$
 or  $\mathbb{R}^{q}$  ; and

the other of R<sup>a</sup> and R<sup>b</sup> is H or alkyl.

q is 0, 1, 2, 3, or 4.

58

61

63

68

70

72

76

78

- 14. The compound of claim 13, wherein R<sup>g</sup> is H, methyl, ethyl, propyl, cyclopropyl,
  methoxy, or ethoxy; R<sup>h</sup> is F, Cl, CN, methyl, methoxy, ethoxy, OC(O)CH<sub>3</sub>, OC(O)C<sub>2</sub>H<sub>5</sub>,
  C(O)OH, C(O)OC<sub>2</sub>H<sub>5</sub>, C(O)NH<sub>2</sub>, NHC(O)CH<sub>3</sub>, or S(O<sub>2</sub>)NH<sub>2</sub>; R<sup>i</sup> is H, methyl, ethyl, or
  acetyl, and q is 0, 1, or 2.
- 15. The compound of claim 14, wherein  $R^g$  is methyl or methoxy;  $R^i$  is H; and q is 0.
- 71 16. The compound of claim 14, wherein U is N and V is CH.
- 17. The compound of claim 16, wherein Z is N and W is O.
- 18. The compound of claim 17, wherein X is NR<sup>c</sup>; and R<sup>c</sup> is H, methyl, ethyl, or acetyl.
- 19. The compound of claim 18, wherein Y is O or CH<sub>2</sub>; and n is 0, 1, 2, 3, or 4.
- 79 20. The compound of claim 19, wherein R<sub>3</sub> is aryl or heteroaryl.

21. The compound of claim 20, wherein R<sub>3</sub> is pyridinyl.

82

22. The compound of claim 14, wherein Y is O or CH<sub>2</sub>, and n is 0, 1, 2, 3, or 4.

84

23. The compound of claim 22, wherein R<sub>3</sub> is aryl or heteroaryl.

86

87 24. The compound of claim 22, wherein R<sub>3</sub> is pyridinyl.

88

25. The compound of claim 1, wherein  $R_1$  is anylor heteroaryl.

90

26. The compound of claim 25, wherein  $R_1$  is

92

- 93 in which
- D is O, S, or NR<sup>m</sup>;
- R<sup>j</sup> is benzo, halogen, CN, hydroxyl, alkyl, aryl, heteroaryl, alkoxyl, aryloxyl, or
- 96 heteroaryloxyl;
- 97 R<sup>m</sup> is H, alkyl, or alkylcarbonyl; and
- 98 r is 0, 1, or 2.

99

27. The compound of claim 26, wherein X is NR<sup>c</sup>; and R<sup>c</sup> is H, methyl, ethyl, or acetyl.

101

102 28. The compound of claim 27, wherein U is N and V is CH.

103

29. The compound of claim 28, wherein Z is N and W is O.

105

30. The compound of claim 29, wherein Y is O or CH<sub>2</sub>; and n is 0, 1, 2, 3, or 4.

107

31. The compound of claim 26, wherein Y is O or CH<sub>2</sub>; and n is 0, 1, 2, 3, or 4.

<u>.</u> .

- 32. The compound of claim 31, wherein  $R_3$  is aryl or heteroaryl.
- 33. The compound of claim 32, wherein  $R_3$  is pyridinyl.
- 34. The compound of claim 31, wherein R<sub>3</sub> is OR<sup>c</sup>, SR<sup>c</sup>, C(O)OR<sup>c</sup>, or C(O)NR<sup>c</sup>R<sup>d</sup>.
- 35. The compound of claim 31, wherein  $R_3$  is

$$R^{f}$$
  $A'$   $A'$   $A'$   $A'$   $A'$ 

- in which
- each of A and A', independently, is O, S, or NH;
- each of Re and Rf, independently is H, alkyl, aryl, or heteroaryl; and
- m is 1 or 2.
- 36. The compound of claim 31, wherein  $R_1$  is

37. The compound of claim 36, wherein R<sup>j</sup> is methyl, ethyl, propyl, or benzo; and r is 1 or 2.

38. A method for treating an interleukin-12 overproduction-related disorder, comprising administering to a subject in need thereof an effective amount of the compound of formula (I):

132 wherein

131

- 133  $R_{1} \text{ is } N = \begin{matrix} R^{a} \\ R^{b} \end{matrix}, \text{ aryl, or heteroaryl;}$ 135
- each of R<sub>2</sub> and R<sub>4</sub>, independently, is R<sup>c</sup>, halogen, nitro, cyano, isothionitro, SR<sup>c</sup>, or OR<sup>c</sup>; or R<sub>2</sub> and R<sub>4</sub>, taken together, is carbonyl.
- 138 R<sub>3</sub> is R<sup>c</sup>, alkenyl, alkynyl, OR<sup>c</sup>, OC(O)R<sup>c</sup>, SO<sub>2</sub>R<sup>c</sup>, S(O)R<sup>c</sup>, S(O<sub>2</sub>)NR<sup>c</sup>R<sup>d</sup>, SR<sup>c</sup>, NR<sup>c</sup>R<sup>d</sup>,
  139 NR<sup>c</sup>COR<sup>d</sup>, NR<sup>c</sup>C(O)OR<sup>d</sup>, NR<sup>c</sup>C(O)NR<sup>c</sup>R<sup>d</sup>, NR<sup>c</sup>SO<sub>2</sub>R<sup>d</sup>, COR<sup>c</sup>, C(O)OR<sup>c</sup>, or C(O)NR<sup>c</sup>R<sup>d</sup>;
- 140 R<sub>5</sub> is H or alkyl;
- n is 0, 1, 2, 3, 4, 5, or 6;
- 142 X is O, S, S(O), S(O<sub>2</sub>), or NR<sup>c</sup>;
- Y is a covalent bond,  $CH_2$ , C(O),  $C=N-R^c$ ,  $C=N-OR^c$ ,  $C=N-SR^c$ , O, S, S(O),  $S(O_2)$ , or  $NR^c$ ;
- 145 Z is N or CH;
- one of U and V is N, and the other is CR<sup>c</sup>; and
- 147 W is O, S, S(O), S(O<sub>2</sub>), NR<sup>c</sup>, or NC(O)R<sup>c</sup>;
- in which each of R<sup>a</sup> and R<sup>b</sup>, independently, is H, alkyl, aryl, heteroaryl; and each of R<sup>c</sup> and R<sup>d</sup>, independently, is H, alkyl, aryl, heteroaryl, cyclyl, heterocyclyl, or alkylcarbonyl.
- 39. The method of claim 38, wherein the disorder is rheumatoid arthritis, sepsis, Crohn's disease, multiple sclerosis, psoriasis, or insulin-dependent diabetes mellitus.